

WHAT IS CLAIMED IS:

1. A computer readable medium including computer executable code stored thereon, the code for estimating power consumption of an integrated circuit, comprising:
  - code for simulating logic of basic and mega cells of the integrated circuit;
  - code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a first value of electric power consumed by said mega cells based on said logic simulations and pre-established power consumption data;
  - code for estimating a current consumed by the basic cells for estimating a second value of electric power consumed by said basic cells based on said logic simulations and pre-established power consumption data; and
  - code for combining said first and second values to obtain the power consumption of the integrated circuit.
2. A computer readable medium as recited in claim 1, wherein the computer readable medium comprises a floppy disk.
3. A computer readable medium as recited in claim 2, wherein the floppy disk comprises a 3.5 inch diskette.

4. A computer readable medium as recited in claim 1, wherein the computer readable medium comprises a compact disk
5. A computer readable medium as recited in claim 4, wherein the compact disk is a read-only disk.
- 5 6. A computer readable medium as recited in claim 4, wherein the compact disk is a read/write disk.
7. A computer readable medium as recited in claim 1, wherein the computer readable medium comprises a DVD.
8. A computer readable medium as recited in claim 1, wherein the computer executable code is one of compressed and noncompressed.
9. A computer readable medium including computer executable code stored there, the code for estimating electric power consumed by basic cells and mega cells of an integrated circuit to estimate total power consumed by the integrated circuit, comprising:
- 15 code for simulating logic of said basic cells and said mega cells, wherein each function of each mega cell for logic simulation is defined by hardware description language;
- code for estimating a current consumed by the basic cells for estimating a first

value of electric power consumed by said basic cells based on logic simulation results from said logic simulations and pre-established power consumption data for each logic state of each input and output terminal of said basic cells;

5 code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a second value of electric power consumed by said mega cells based on logic simulation results from said logic simulations and pre-established power consumption data for said logic states, variables in the function description, and said operating frequencies at each input and output terminal of each mega cell; and

code for adding said first and said second values of the power consumption to determine the total power consumption for the integrated circuit.

10. A computer readable medium as recited in claim 9, wherein the computer readable medium comprises a floppy disk.

15 11. A computer readable medium as recited in claim 10, wherein the floppy disk comprises a 3.5 inch diskette.

12. A computer readable medium as recited in claim 9, wherein the computer readable medium comprises a compact disk

13. A computer readable medium as recited in claim 12, wherein the compact disk  
is a read-only disk.

14. A computer readable medium as recited in claim 12, wherein the compact disk  
is a read/write disk.

5 15. A computer readable medium as recited in claim 9, wherein the computer  
readable medium comprises a DVD.

16. A computer readable medium as recited in claim 9, wherein the computer  
executable code is one of compressed and noncompressed.

17. A computer readable medium including computer executable code stored  
thereon, the code for estimating power consumption of an integrated circuit, comprising:  
code for compiling a table which tabulates data of electric power consumed by  
mega cells of the integrated circuit during operation;  
code for simulating logic of said mega cells and basic cells of the integrated  
circuit, wherein data from said table is used when simulating logic of said mega cells;  
code for estimating a current consumed by the mega cells by obtaining logic  
states for each mega cell, determining an average operation frequency for each logic  
state, and determining an alternating current component and a direct current component  
for each logic state to calculate said current consumed by the mega cells for estimating a  
first value of electric power consumed by said mega cells based on results from said

logic simulations;

code for estimating a current consumed by the basic cells for estimating a second value of electric power consumed by said basic cells based on logic simulation results from said simulations and pre-established power consumption data for each logic state at each input and output terminal of said basic cells; and

code for adding said first and said second values to obtain the power consumption of the integrated circuit.

18. A computer readable medium as recited in claim 17, wherein the computer readable medium comprises a floppy disk.

19. A computer readable medium as recited in claim 18, wherein the floppy disk comprises a 3.5 inch diskette.

20. A computer readable medium as recited in claim 17, wherein the computer readable medium comprises a compact disk

21. A computer readable medium as recited in claim 20, wherein the compact disk is a read-only disk.

22. A computer readable medium as recited in claim 20, wherein the compact disk is a read/write disk.

23. A computer readable medium as recited in claim 17, wherein the computer readable medium comprises a DVD.
24. A computer readable medium as recited in claim 17, wherein the computer executable code is one of compressed and noncompressed.
- 5 25. A programmable computer for estimating power consumption of an integrated circuit comprising:  
processor for executing computer executable code;  
storage media for storing the computer executable code executed by the processor, the computer executable code including:  
code for carrying out logic simulations of circuit data for basic cells and mega cells of the integrated circuit;  
code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a first value of electric power consumed by said mega cells based on the results of said logic simulations and pre-established power consumption data;  
code for estimating a current consumed by the basic cells for estimating a second value of electric power consumed by said basic cells based on the results of said logic simulations and pre-established power consumption data; and  
code for combining said first and second values of electric power consumed by

5 said mega and basic cells so as to obtain the power consumption of the integrated

circuit.

26. A programmable computer as recited in claim 25, further comprising  
a read/write unit in which a computer readable media including computer executable  
code can be input, the computer executable code being downloaded from the computer  
5 readable media to the storage media via the read/write unit for execution by the  
processor.

27. A programmable computer as recited in claim 26, wherein the computer  
executable code is stored on the computer readable media in compressed format and is  
decompressed and downloaded to the storage media.

28. A programmable computer as recited in claim 26, wherein the computer  
5 readable media comprises at least one of a floppy disk, a CD, DVD and an Internet  
server.

29. A programmable computer for estimating power consumption of an integrated  
15 circuit, comprising:

processor for executing computer executable code;  
storage media for storing the computer executable code executed by the  
processor, the computer executable code including:

code for carrying out logic simulations of circuit data for basic cells and mega cells of the integrated circuit;

code for estimating a current consumed by the basic cells for estimating a first value of electric power consumed by said basic cells, said estimate being based on logic simulation results obtained by said simulation means and pre-established power consumption data for each logic state at each input and output terminal of said basic cells;

code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a second value of electric power consumed by said mega cells, said estimate being based on logic simulation results obtained by said simulation means and pre-established power consumption data for each logic state, variables in a function description, and said operating frequencies of said mega cells at each input and output terminal; and

code for adding said first and second values of power consumed by said basic and mega cells so as to obtain the power consumption of the integrated circuit.

30. A programmable computer as recited in claim 29, further comprising a read/write unit in which a computer readable media including computer executable code can be input, the computer executable code being downloaded from the computer readable media to the storage media via the read/write unit for execution by the processor.

31. A programmable computer as recited in claim 30, wherein the computer executable code is stored on the computer readable media in compressed format and is decompressed and downloaded to the storage media.
32. A programmable computer as recited in claim 30, wherein the computer readable media comprises at least one of a floppy disk, a CD, DVD and an Internet server.
33. A programmable computer for estimating power consumption of an integrated circuit comprising:  
processor for executing computer executable code;  
storage media for storing the computer executable code executed by the processor, the computer executable code including:  
a table which tabulates data of electric power consumed by mega cells of the integrated circuit during operation;  
code for carrying out logic simulations of circuit data for basic cells of the integrated circuit and said mega cells, wherein data from said table is used when simulating logic of said mega cells;  
code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a first value of electric power consumed by said mega cells, said estimate being based on

logic simulation results from said simulation means;

code for estimating a current consumed by the basic cells for estimating a second value of electric power consumed by said basic cells, said estimate being based on logic simulation results obtained by said simulation means and pre-established power consumption data for logic states for each input and output terminal of said basic cells;

5 and

code for adding said first and second values of the power consumed by said mega and basic cells so as to obtain the power consumption of the integrated circuit.

34. A programmable computer as recited in claim 33, further comprising a read/write unit in which a computer readable media including computer executable code can be input, the computer executable code being downloaded from the computer readable media to the storage media via the read/write unit for execution by the processor.

15 35. A programmable computer as recited in claim 34, wherein the computer executable code is stored on the computer readable media in compressed format and is decompressed and downloaded to the storage media.

36. A programmable computer as recited in claim 34, wherein the computer readable media comprises at least one of a floppy disk, a CD, DVD and an Internet server.

37. A programmed computer for estimating power consumption of an integrated circuit, the programmed computer programmed with code comprising:

code for simulating logic of basic and mega cells of the integrated circuit;

code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a first value of electric power consumed by said mega cells based on said logic simulations and pre-established power consumption data;

code for estimating a current consumed by the basic cells for estimating a second value of electric power consumed by said basic cells based on said logic simulations and pre-established power consumption data; and

code for combining said first and second values to obtain the power consumption of the integrated circuit.

15 38. A programmed computer for estimating electric power consumed by basic cells and mega cells of an integrated circuit to estimate total power consumed by the integrated circuit, the programmed computer programmed with code comprising:

code for simulating logic of said basic cells and said mega cells, wherein each function of each mega cell for logic simulation is defined by hardware description language;

code for estimating a current consumed by the basic cells for estimating a first value of electric power consumed by said basic cells based on logic simulation results

from said logic simulations and pre-established power consumption data for each logic state of each input and output terminal of said basic cells;

code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a second value of electric power consumed by said mega cells based on logic simulation results from said logic simulations and pre-established power consumption data for said logic states, variables in the function description, and said operating frequencies at each input and output terminal of each mega cell; and

code for adding said first and said second values of the power consumption to determine the total power consumption for the integrated circuit.

39. A programmed computer for estimating power consumption of an integrated circuit, the programmed computer programmed with code comprising:

code for compiling a table which tabulates data of electric power consumed by mega cells of the integrated circuit during operation;

code for simulating logic of said mega cells and basic cells of the integrated circuit, wherein data from said table is used when simulating logic of said mega cells;

code for estimating a current consumed by the mega cells by obtaining logic states for each mega cell, determining an average operation frequency for each logic state, and determining an alternating current component and a direct current component for each logic state to calculate said current consumed by the mega cells for estimating a

first value of electric power consumed by said mega cells based on results from said logic simulations;

code for estimating a current consumed by the basic cells for estimating a second value of electric power consumed by said basic cells based on logic simulation results from said simulations and pre-established power consumption data for each logic state at each input and output terminal of said basic cells; and

code for adding said first and said second values to obtain the power consumption of the integrated circuit.